

# THE SUPPOSED CURATIVE EFFECT OF OPERATIONS *PER SE*.

By J. WILLIAM WHITE, M.D.,

OF PHILADELPHIA,

PROFESSOR OF CLINICAL SURGERY IN THE UNIVERSITY OF PENNSYLVANIA; SURGEON  
TO THE UNIVERSITY AND GERMAN HOSPITALS.

[CONCLUDED].

CLASS III.—Under the last heading of "Miscellaneous Operations," may be grouped several of very diverse character.

Fehling<sup>32</sup> reports the case of a woman who had been in bed for one year for osteo malacia. Six weeks after a Cæsarean section she was out walking, and later was entirely cured.

Hoffa<sup>33</sup> reports eight cases of osteo-malacia, cured by oophorectomy.

Schaua<sup>34</sup> reports two cases of osteo-malacia cured by:

I. Oophorectomy. Woman, æt. 32; 4 para. Typical symptoms and deformities of osteo malacia. Treatment negative in results. Confined to bed by disease 15 months.

Oophorectomy. No very marked pathological changes in ovaries. In three weeks patient left her bed; six months after operation, entirely well.

II. Porro operation (ovaries not removed); in two and a half months patient well. Osteo-malacia of five years' standing.

Baumann<sup>35</sup>.—Of 12 Cæsarean sections, favorable influence on osteo-malacia in only three cases. Of 24 Porro operations, 20 complete cures, 4 decided improvements in condition.

<sup>32</sup>Verh. d. deutsch. Gesell. f. gynakol. 1888.

<sup>33</sup>Beitrage zur Geburtshilfe in Gynakol. Stuttgart, 1889.

<sup>34</sup>Wien. Med. Woch., No. 19, 1890, p. 788.

<sup>35</sup>Ueber d. Einfluss der Porro Op. u. Kastrat. auf das Wesen des Osteo-malacia, Basel, 1889.

OPERATIONS FOR VARIOUS CEREBRAL SYMPTOMS, CHIEFLY EPILEPSY, IN WHICH LITTLE OR NOTHING WAS FOUND TO ACCOUNT FOR THE SYMPTOMS, BUT EITHER MARKED BENEFIT OR CURE FOLLOWED.

[TABLES CONTINUED.]

TABLE III.—CASTRATION.

<i>Operator and Reference.</i>	<i>Age and Sex.</i>	<i>Supposed Cause, and Character of Fits.</i>	<i>Operation.</i>	<i>Conditions Found.</i>	<i>Result — Time be- tween Operation and Report.</i>	<i>Remarks.</i>
Jas. I. Rooker —Chin- cinnati Lancet and Obs., 1861, lv. 274.	35 M.	Epileptic fits of some years' duration; supposed to be caused by masturbation.	Castration double.		Cure. 3 mos.	No fits since operation.
S. S. McKinley, M.D. — Irvington, Ga., Per- sonal interview with Mr. McGavock, now of U. S. Navy. —Am- Med. Gaz., viii. vi, 1855, p. 295.	27 "	Epilepsy from ret. 12-24 years. Had mumps, took cold and measles during at- tention to testicles re- sulted.	Castration for me- moranda during at- tack of mumps.		Cure. 3 years.	No fits since operation.
" "	16 "	Boy subject to fits; fell through bridge and had one testicle mashed.	One testis removed for injury.		Cure. 6-7 years.	No fits since
E. E. McKinley. — Am. Med. Gaz., vol. vi, 1855, p. 295.	14 Negro.	Epileptic.	Castrated.		Cure. 6 years.	Sold for \$1,100, ret. 20. No fits since operation.
" "	42 "	Epileptic from the age of 13 years.	"		Cure. 2 years or more.	No fits after operation.
Dr. McKinley —Am- Med. Gaz., vol. vi, 1855, p. 295.		Two cases of Dr. White, of Tennessee. Two cases of Dr. Talbot, of Missouri. One case of Dr. Hacker, (de- censed) of Louisiana.			Cures.	By same operation. By same operation. By same operation.

TABLE IV.—TRACHEOTOMY.

Operator and Reference.	Age and Sex.	Supposed Cause, Duration and Character of Fits.	Operation.	Conditions Found.	Result.—Time between Operation and Report.	Remarks.
A. Wynn Williams, M.D., R.G.S.E., Medical Times and Gazette, London, 1860, ii, 253	18 M.	Fits since to years of age.	Tracheotomy.		Improved. 4-5 mos.	After six months fits became as frequent as before.
"	25 "	Nocturnal fits for many years.	"		Much improved. 2 years.	Very few and mild fits; resumed work.
J. C. Bucknill, M.D., London, Lancet, 1853, ii, 137	22 F.	Frequent and severe fits for one year.	Tracheotomy May 2d, last.		Improved. 4 mos.	Fits reduced 50 per cent in frequency and 75 per cent in severity, and mental condition much improved.
"	35 "	Fits for several years.	Tracheotomy June 20.		" 3 mos.	Fits lessened in severity.
Chas. Edwards.—Lancet, London, 1853, i, 492.	Adult. M.	Rapid succession of epileptic fits and terrific laryngismus.	Tracheotomy.		Cured. Several weeks.	
Marshall Hall. Operation by Mr. Holmes Ogle's case. Lancet, London, 1856, ii, 136.	17 "	Epilepsy for six years from fright; more and more frequent with blackness of face; bitten tongue and throat; convulsions; stupor; mania; idiocy.	"		" 2 mos.	For two days after operation had slighter fits, none since. Restored from idiocy and strength improved.
Marshall Hall Operation by John Neill, Esq., Penn. Hosp., Philadelphia.—Lancet, London, 1853, ii, 233.	20 "	First fit nine years ago; cause unknown. For past year could not attend to business. Fit every other day; at times 15 to 20 in one day. Mind affected.	"		Much improved. 2 mos.	Nothing like a fit until 13th day when he attributed removal of tube. Died many days after. Only slight symptoms of mania, but no more. Dr. Neill thinks the tube had fallen out and death occurred before it could be replaced.

TABLE IV.—CONTINUED.

<i>Operator and Reference.</i>	<i>Age and Sex.</i>	<i>Supposed Cause, Duration and Character of Fits.</i>	<i>Operation.</i>	<i>Conditions Found.</i>	<i>Result. — Time between Operation and Report.</i>	<i>Remarks.</i>
W. H. Cone, Esq. — Lancet, London, 1851, ii, p. 35.	34	M. Fits seven or eight years; recently thrice weekly.	Tracheotomy.		Cured. 4 mos.	No fits since.
Marshall Hall, Mr. 36 Anderson's case. — Lancet, London, 1851, ii, p. 563	36	F. Fearfully epileptic for twenty- four years.	"		Much im- proved. 3 mos.	

TABLE V.—REMOVAL OF SUPERIOR CERVICAL GANGLIA OF SYMPATHETIC NERVE.

<i>Operator and Reference.</i>	<i>Age and Sex.</i>	<i>Supposed Cause, Duration and Character of Fits.</i>	<i>Operation.</i>	<i>Conditions Found.</i>	<i>Result. — Time between Operation and Report.</i>	<i>Remarks.</i>
Wm. Alexander — "The Treatment of Epilepsy," Edin., and London, 1889.	13	Has had fits since 9 or 10 years of age and increasing.	Removal of superior cervical ganglia.		Cured.	No fits for eighteen months.
" " 16	16	Has had fits for five or six years. They are numerous and increasing.	"		"	No fits for about two years.
" " 19	19	F. Hereditary epilepsy. Has been dull and stupid for fifteen years.	"		"	No fits for one and one-half to two years. Is now married and mind is clear.
" " 18	18	Has had fits for four years.	"		"	Probably had no fits for two years, and is now working.
" " 14	14	Father and two sisters epi- leptic. Had first fit when 18 months old.	"		"	No fits for two years.

Wm. Alexander — "The Treatment of Epilepsy," Edin- and London. 1889.	Has had fits for eight or nine years; very bad case; is dull and stupid.	Removal of superior cervical ganglia.	Cured.	No fits for two to three years.
" 18	Has had fits for five years.	"	Improved.	Patient disappeared from ob- servation.
" 36	Has had fits for sixteen years, and are increasing in num- ber.	"	"	(Only one ganglion fully re- moved).
" 33	Has had fits for eighteen years, and they are increas- ing in number. Mind is also falling.	"	"	Fits reduced to one-half their former number, and the mind is better.
" 30	Has had fits since infancy.	"	"	Got worse after going home which was due to bad sur- roundings.
" 23	Has had fits for six years.	"	"	"
" 16	Has had fits for one year.	"	"	Improved mentally and phy- sically and fits are lighter.
" 8	Has had fits since birth; a very bad case.	"	"	Much improved at last report.
"	Has had fits since 13 years of age.	"	"	Much improved during last three months.
"	Has had fits since 13 years of age.	"	"	Was improving very much, but died of pneumonia.
" 13	Had had fits for three years. Mind was stupid.	"	"	Improved very much.

This table is taken from a list of 24 cases, of which 6 recovered and remained well at the end of 2 years; 5 were improved; 5 remained unimproved; and none of these have been made perceptibly worse by the operation; 2 died soon after operation, but not from its direct effects; and one has never been heard from.

TABLE VI.—INCISION IN SCALP, INCLUDING ALL THE SOFT TISSUES.

Operator and Reference.	Age and Sex.	Supposed Cause, and Character of Fits.	Operation.	Conditions Found.	Result.—Time between Operation and Report.	Remarks.
T. F. Palmer.—London Med. Gazette, 1835-6, xvi, 221.	F. 35	Pain over right temple for some months, followed later by fits.	Divided integuments down to bone Mar. 5, later removed circular portion of scalp; action in neck. <i>Lately trephining</i>	Cranium more than twice as thick as normal. Dura adherent and healthy.	Cured	First incision reduced fits for few weeks; removing piece of scalp caused them again to cease for a time. A second in the neck again gave relief. Two fits after operation, two fits few hours after operation; none since; has not felt so well for two years.
Graham Fitch.—Am. J. Pract. Medicine, 1877, xvi, 212.	" 21	Fell at the age of 7 years, striking head; unconsciousness for a time. Depression in parietal bone felt.	Incision in scalp over depression, 1 inch in length, kept open 3 months.	"	"	But one fit since operation, and that was soon after operation.
Schnuckler.—Schmutzer's Vermischte Chirurgische Schriften, 1776, p. 252.	M. 22	Scar at upper inner portion of left orbit. First two months (first fit) probably few weeks after blow. One or two attacks daily.	Skin incision made one day next day left hemiplegia involving tongue. <i>Trephined</i>	Dura normal, but separated slightly from the bone.	"	Fits did not recur. Hemiplegia relieved. Patient completely cured.
F. H. Hamilton.—Buffalo Medical and Surgical Jour., and Rev., v, p. 460.	" 23	Peculiar epileptic fits since 5 years. Age 15 fell out of bed at the age of 3 years, and struck head.	Dissected up scars on scalp.	Skull found normal so trephining was not done; fits repeated.	"	Writes at this date and considers himself cured. Mind clear, etc.
Dr. Parish.—Philadelphia Med. Exam., 1813, p. 14.	" 20	Quick head against gas pipe; few fits for first few days; return after eight months.	Incision through tender spot of scalp and few issue pins introduced and retained by plaster.	"	"	No return of fits.
M. Bryant.—Lancet, London, 1879, i, p. 799.	Adult.	Localized pain in head and epileptic attacks following injury five years previously. Appeared to be depression of skull.	Incision of scalp.	As skull was normal and no fracture or depression, trephining was not done.	"	Pain and convulsions left patient from moment of incision.

Mr. Bryant, (Lancet, London, 1879, ii, p. 799), reports two other cases, almost similar, followed by perfect relief.

TABLE VII.—MISCELLANEOUS OPERATIONS.

Operator and Reference.	Age and Sex.	Supposed Cause, Duration and Character of Fits.	Operation.	Conditions Found.	Result.—Time between Operation and Report.	Remarks.
Dr. Hadden, before Clinical Society, London.—Lancet, London, 1887, i, p. 472.	M. 32	Shot in left calf in 1872; several shot extracted. Four months after began to have fits, for nine months occasional, afterward as many as 12 daily.	Sciatic nerve stretched.		No fits afterward for thirteen years, and then began again. Thirteen years and 4 months.	Fits began with sharp, twitching pain in scar in calf. Scar tender and painful. Sometimes caused convulsions. Nerve stretched and cut. No fits for nine days; then occasional seizures while in hospital. Four months later man wrote and said he had no fit since he left the hospital.
Mr. Howlly, before Clinical Society, N. Y. Med. Gaz., London, 1887, i, p. 472.	"	Shot in leg eighteen months before fits increasing in frequency and force, preceded by pain in region of leg supplied by musculo-cutaneous nerve.	One and one-half inch of musculo-cutaneous nerve excised.		Five years without fits. Five years.	Fits recurred; some shot found under skin and removed. Temporary stoppage of fits. Mr. Willett later stretched sciatic nerve. Fits gradually ceased and no further recurrence.
Horace Green, M.D.—37 N. Y. Med. Gaz., 1853, iv, 98.	"	Epilepsy twenty-seven years. Under use of silver nitrate for two years, fits ceased, and he had acquired ergyria thymus in larynx. Fits recurred and had several daily.	Cauterization of larynx. Prolonged with silver nitrate 35 grs to f. oz. j. Fits in larynx later 80 grs.		Fits ceased while under treatment.	Struck with insensibility of larynx. After using silver fits would be checked for a period of 10 days or upward. On recurring the same treatment would again arrest them.
Dr. J. J. Lehart, Ohio Medical Recorder, Columbus, 1885-1, v, 102.	F. 26	Epileptic fits at or about menstrual period. Usual medication without benefit.	Cauterization of larynx. Silver, 60 grs. to f. oz. j. Circumscribed.		Fits arrested while under treatment.	If larynx was cauterized a few days before menstruation period, fits surely prevented. Doctor thinks the cure is permanent.
	M. 18	Epileptoid seizures.		There was no irritation about glans or foreskin—only a long prepuce.	Cured.	

TABLE VII.—CONTINUED.

<i>Operator and Reference</i>	<i>Age and Sex.</i>	<i>Supposed Cause, Duration and Character of Fits.</i>	<i>Operation.</i>	<i>Conditions Found.</i>	<i>Result.—Time between Operation and Report.</i>	<i>Remarks.</i>
Thos. J. Griffiths.— Rep. Superv. Surg. 29 Har. Hosp. 1875, 26 Wash. 1876, p. 203, 29	" " " "	Epilepsy. " " "	Seton back of neck. " " " "		Improved. Recovered, 6 wks. Improved. Recovered, 2 mos. Recovered, 5 mos.	
S. D. Risley.—Personal communication.	Boy.	Shambling gait; low grade of intellect, and curious group of symptoms, diagnosed as epilepsy.	Tenotomy of external recti.		Improved.	The frequently recurring spells were arrested by the operation. After six weeks, and shambling gait and mental habits were much improved. Relapsed, however, each time.
M. Ch. Fère.—Soc. de med. des Hôp. de Paris, 1868, T. v. 3, p. 132. M. Gambartud, Paris, London Lancet, 39.	"	Convulsions.  Convulsions.	Scalp burned by 6 to 15 fire-joints.  Acupuncture needles passed four times into heart to the depth of 3 inches.	Attacks always preceded by symptoms of angina pectoris.	Cured.  "	Pits decreased and at time of writing had no fits for five months.



TABLE VIII.—SPONTANEOUS AND ACCIDENTAL CURES OF EPILEPSY.

Reference.	Age.	Sex.	Supposed Cause, Character and Duration of Fits.	Alleged Curative Agent.	Remarks.
Jno. C. Benson, M.D.— <i>Trans. Ill. Med. and Surg. Repert.</i> , Philadelphia, 1867, xx, p. 145.	40	M.	Fits since early boyhood. Every few days to two or three months.	Fell in a fit on bed of live coals in fire place. Dreadfully burned on hands, arms, face, neck, breast and head. Treatment: opium and stimulents and caron oil.	No fit up to this time—four years. Before burn, being drunk would bring on fit, but since, it does not.
M. Reece, M.D., Abington, Ill.— <i>ibid.</i> , p. 2, 9	12	"	Duration, fifteen months; fit daily. Always lost consciousness.	Fell against stove in fit right side of face burned from outer cadium of eye over temple and malar bone. Third degree (Dupuytren).	No fit after burn until reported—two months.
Wm. Henderson, M.D.— <i>Curator Phila. Edinb. Med. and Surg. Journal</i> , 1836, xvi, p. 96.	8	"	Epileptic fits for over one year. Aura mild but frequent. Took whooping cough and each spell of severe whooping caused fit. Continued to bed. Fits affected temper and mind.	During severe spell of coughing had profuse epistaxis.	From moment of epistaxis never had another fit, and rapidly regained health and snailty. Continued well one year later.
Wm. Heise, M.D.— <i>Illin. Med. News</i> , 1843, x, p. 46. C. O. Heine, M.D., J. O. Roynt Col. Surgeons.	36	"	Confined for two years as a dangerous lunatic; frequent and regular epileptic fits, no history; fits generally every third day.	Attacked by another lumatic and sustained fracture right parietal bone, with depression and several large pieces driven through dura into brain; considerable cerebral substance forced back through wound; copious hemorrhage, etc.; usual treatment.	Now paralytic, paraplegic, but sensation remained. Incontinence of urine and feces. Intellect more rational and acute; fits less frequent and finally ceased. Continued so for over six years, when he died.
Jacob Sproul.— <i>Medical Times</i> , London 1884, ix, p. 152.	21	F.	Two fits of epilepsy daily.	Severe burn back of head and arm and side of face and neck. Capsular ligament on back of fingers destroyed, etc.; amputation advised. She refused and treated with splint and ung. i. p. s. calm. Cure.	No fits since burn three years ago
R. Beveridge, M.B.— <i>Lect. on Path.</i> , and <i>Path. to Royal Infirmary</i> , Aberdeen, Med. Times and Gazette, London, 1889, i, p. 390.	70	"	Epileptic fits for ten years, generally once a fortnight, usual characters; complete unconsciousness. Fell over a precipice, cause of fits.	Fell in fit in fire and severely burned, whole scalp charred, also eyes, lips, cheeks and ears, also tip of tongue; patient much shocked. Seventeen days later consciousness returned; five days later both eyes fell out; exfoliation of frontal, nasal and parietal of ethmoid bones.	All healed over in eight months. Death fifteen months after burn from influenza. No fit after burn and enjoyed good health.

TABLE VIII. — CONTINUED.

Reference.	Age.	Sex.	Supposed Cause, Character and Duration of Fits.	Alleged Curative Agent.	Remarks.
Salvator de Renzi — Jour. d. pract. Med., Berlin, 1836, lxxvii, 181, 106.	18	M.	Since eight years had epilepsy; attacks at least once a week; resisted every known therapeutic agent.	Gun-powder explosion and fall from upper story of house. Complicated fracture frontal and left upper jaw bones. Patient 5 months in bed. Suppuration and exfoliation of bone. No epileptic attack during this time. Loss of epileptic facies. Increased mental powers.	On closure of head wound attacks renewed with increased violence. On placing a scarf in neck, epilepsy again nearly disappeared.
W. E. Wormes, — <i>Ming.</i> f. d. ges. Heilk., Berlin 1841, lviii, 84.	48	"	Since early youth, daily attacks of epileptic convulsions. No treatment was of any value.	Severe burn of face during a fit; profuse suppuration and six weeks to cicatrize. Free from fits during this time. As ulcer-surface closed had headache; following fright had fit of unusual severity and thereafter his disease was same as before.	Fits ceased while wound was open, but recurred as before after it had cicatrized over.
Dr. H. E. Groen, Ky. — W. J. J. M. and Phys. Science, 1850, iii, 209	48	Negro	Fits two and a half years. Had been treated with all sorts of drugs without benefit.	During fit fell in fire and had foot severely burned. Took four months to heal.	No fits while wound was healing (four months) but recurred after wound had healed.
Case of Dunst., cited by Delisle, Traité d' Epilepsie, p. 422. Paris, 1854.		M.	Young man subject to fits.	Assailed by robbers, wound in forehead, destroying large portion of bone; wound open a long time, but finally cicatrized.	Cured. No fits after injury.
W. H. Edwards — <i>Vir-</i> ginia Med. and Surg. Journal, Richmond, 1855, iv, 204.	24	F.	First fit at 12 years of age, after full meal; continued ever since. In a fit fell on hearth and sustained severe burn of foot; very deep; sore kept open and offensive.	Amputation below knee on account of burn received 5 years before.	Fits continued during five years; the burn was suppurating, but ceased at once after amputation and had no recurrence. Three years.
Aubnnel, — <i>Gaz. med. de</i> <i>Par.</i> 1839, 2 s., vii, 679.	40	M.	No heredity; eighteen months after severe fright; had a fit. Fits continued. During attack left arm and knee severely burned.	Amputation of arm high up for burn. Wound healed in one month.	Cured. No fit since amputation, now eighteen months.
Aubnnel, — <i>Gaz. med. de</i> <i>Par.</i> 1839, 2 s., vii, 679.	50	F.	No heredity. Fits began at 15 years, and increased to 15-20 a day at times. At 23 years received a severe burn of right hand.	Amputation of hand for burn.	Cured. No fits since amputation, four years.

Passing to quite another subject the following communication from a careful and experienced observer is of great interest:

Neglecting the large group of patients who have been relieved by tenotomy of the ocular muscles from symptoms altogether out of proportion to the very slight defect which it was sought to correct, I call to mind but one case which seems to fall within the scope of your inquiry.

A young woman, æt. 20, sought advice for an exophthalmos on right side. There was a marked aneurismal thrill and bruit. Pressure was made over the carotid with the result of temporarily arresting the thrill and bruit. This was repeated three times, and an appointment made for consultation a week later with Dr. Agnew. The exophthalmos remained, but the thrill and bruit, so unmistakably present before, were absent. Dr. Agnew suggested an exploratory puncture, which I made, the findings to be described being verified by him. A resisting mass, apparently the size of a filbert, was lying deep in the upper and inner angle of the orbit. The vision was still  $\frac{1}{3}$ , and no operative interference was advised. She returned to her home in the interior of the State. Six months later her father reported that the exophthalmos had disappeared under the administration of "herbs", directed by an old woman in the mountains.

Philadelphia, Pa., March 23, 1891.

SAMUEL D. RISLEY.

It seems to me that in other ophthalmological work still further illustrations of my subject may be obtained, though I express my opinion in this direction with some diffidence:

In the belief that the constant effort to maintain single vision in cases of insufficiencies of the external ocular muscles leads reflexly to irritation inducing nervous troubles in distant parts, Dr. George T. Stevens has elaborated an operative technique intended to restore the faulty equilibrium of those muscles, known under the name of "graduated tenotomy"—a name sufficiently descriptive of the method.

Freely admitting the universally accepted doctrine that refractive errors and imperfect equipoise of the external ocular muscles are important factors in the production of numerous cases of headache and so-called "reflex" nervous manifestations, and also freely acknowledging the value of tenotomies, both complete and graduated, in the restoration of equilibrium to

badly balanced ocular muscles, I am none the less convinced that in numbers of instances of reported cures of chronic chorea, petit mal, and even delusional insanity the effect of the operation *per se* in large measure was the potent cause of the supposed cure. This is founded not alone upon theory, but rests upon the fact that in certain cases of "reflex nervous troubles" a cessation of the symptoms has followed the tenotomy, although this has not produced perfect equilibrium; or in other words, the effect of the supposed cause ceases, although the supposed cause itself continues to obtain, the only impression made having been by an incision, not again repeated, and not complete enough to accomplish the object for which it was undertaken. Again the relapses which may take place after a perfectly successful series of tenotomies would indicate that the nervous phenomena attributed to the "insufficiencies," for the relief of which the operations were made, were not correctly so attributed, and that the temporary relief must be ascribed to some cause other than the restoration of an imperfect balance of external ocular muscles.

Disturbances of the nervous system from supposed reflex action scarcely come within the scope of this paper or I should have been tempted to include some of the extraordinary cures which have been reported as following circumcision. Whether the partial paralyses, defective co-ordinations, convulsions, deformities, etc., were or were not really due to spinal anæmia of reflex origin, there can be no question that in the number of well-authenticated cases their disappearance followed the removal of a narrow and adherent prepuce.<sup>36</sup> Is it possible that a certain proportion of them would have been equally benefited by the amputation of a toe or finger? The question may be worth considering, even if the answer seems to be obviously in the negative.

Neither have I intended to include in this paper any extended consideration of those cases in which the disease is purely imaginary, although the field that would be opened up in this direction is very fruitful, especially in reference to the operations of charlatans and to those of the extremists and one-

<sup>36</sup>Trans. Ninth Intern. Med. Cong., p. 461, vol. iii.

ideaed specialists always to be found in the ranks of the profession.

The *post hoc ergo propter hoc* method of argument is the refuge of all such operators and various surgical procedures have from time immemorial in this manner been credited with remarkable cures.

An example may be found in the history of what Dr. Van Buren<sup>37</sup> has called 'phantom stricture' of the rectum, a malady which in the first half of this century was almost epidemic in Great Britain. So prevalent was the delusion as to the great frequency of rectal stricture, its origin in spasms and its curability by bougies. Dr. Van Buren<sup>38</sup> quotes from Moliere an illustrative story of a lady in London, who, recommended to a specialist for costiveness, was examined with a bougie and pronounced strictured. Her husband, surprised and angry at the liberty taken with his wife, rushed off with a horse-whip to the house of the offender, but came home again after a little to his anxious partner confessing that he had grievously wronged a most worthy gentleman. The specialist had not only satisfied him as to the certainty of the lady's malady, but had proved, by inserting a bougie, that he also had a stricture. Horace Walpole furnished similar evidence in one of his letters. He warns a friend, who is about going to Bath for his health, not to fall into the hands of a notorious practitioner of that place who always found his patients affected with contraction of the lower bowel and set them to introducing bougies. His friend, in response, warns Walpole not to joke about serious matters, for he had already consulted Mr —, who had actually found an obstruction in his bowel that caused all his symptoms, and that he was already getting better under Mr. —'s skilful use of an instrument which he was inserting daily.

The practitioner alluded to was probably Mr White who published various articles on this subject from 1809 to 1822, having succeeded in finding strictures of the rectum beyond the reach of the finger and recognizable only by the bougie in the vast majority of cases that he examined. In reply to just criticisms he asked "why so many persons have been completely relieved from the most distressing symptoms by the use of the bougies when all other means had failed, if no real obstruction had existed in the intestine" a query which Dr. Van Buren characterized as an *argumentum a posteriori*.

<sup>37</sup>Amer. J. ur. Med. Sc., vol. lxxviii, p. 317.

<sup>38</sup>Traites des Maladies du Rectum, Paris, 1877, p. 320.

This same idea applies to many similar delusions of the present day, among which may be mentioned the extraordinary number of strictures of the pendulous urethra, together with an equally extraordinary variety of symptoms supposed to be produced by them, all of which are "cured" by certain operative procedures not without danger and fully capable of producing and acting through a powerful mental impression. I am inclined to include in the same category also various cases of nephrorrhaphy for so-called floating kidney in which the symptoms before operation were somewhat vague and indefinite, as well as a large number of cases of castration for nervous disease already alluded to. The reported cures of traumatic tetanus by nerve stretching may also be mentioned in this list.

*B.* In seeking for a reasonable explanation of the phenomena observed in the above cases I have endeavored to formulate the conditions which were common to all, or nearly all of them, and have thought the following worthy of consideration:

1. Anæsthesia.
2. Psychical influence or so-called mental impression.
3. Relief of tension.
4. Reflex action or the "reaction of traumatism."

These influences were operative in the majority of the cases although not one of them, except the last, applies to the whole list.

1. *Anæsthesia.*—In my original very vague speculations (which, I may admit, have not become much more definite), as to the possible cause of the improvement in epileptics after such a variety of operations of such different grades of severity, it occurred to me that one constant factor was the production of anæsthesia and that it was conceivable that a disease of the nerve centers not reached by ordinary drugs might be affected by agents of such volatility and diffusibility as ether and chloroform. I accordingly, with the consent of my neurological colleagues, instituted a series of observations upon a number of epileptics in various stages of the disease at one of the hospitals with which I was connected. All other treatment having been withdrawn and the cases kept under observation for a time,

ether was given to the production of full anæsthesia at intervals of from forty-eight to seventy-two hours. The results were either entirely negative or the patients grew worse in consequence of the withdrawal of their bromides and after a trial extending over some weeks and in a considerable number of cases I satisfied myself that anæsthetization alone produced little or no effect in either the severity or the frequency of epileptic convulsions. In the majority of these patients the disease was, of course, of the idiopathic variety, but it must be remembered that in cases of supposed traumatic epilepsy in which nothing abnormal is found on operation the diagnosis has probably been incorrect, and the type of the disease is really idiopathic. The error is facilitated by the frequency with which scars and other relics of former traumatisms are found on the scalps of epileptics, injured during their convulsive attacks.

As applied to abdominal and other cases any marked influence of anæsthesia alone scarcely seems within the limits of possibility and need not be considered.

2. *Psychical influence.*—In discussing the effect of psychical influence it is necessary at the outset to admit that so far as the symptoms in any case are susceptible of explanation on the theory of hysteria or of imagination, their disappearance after a powerful mental impression is easily understood. But only a small proportion of my cases were of this character if the reporters may be believed. The epileptics were genuine epileptics and their paroxysms were attended with all the characteristic phenomena, including the personal injury and risk to life which seem to differentiate them from hysterical or feigned convulsions. The tumors were palpable or visible or both; the character of the tubercular growths was verified by the sight and touch of skilled observers. It may accordingly be assumed once for all that as regards at least two-thirds of the cases on which this paper is based, there were either undoubted symptoms which we habitually associate with organic disease or there was demonstrable and apparently unmistakable evidence of such disease. It must therefore be asked: Is it possible through influences acting upon the emotional or intellectual nature to affect the

organic processes of secretion, nutrition, etc., and, if so, is it conceivable that through the same influences pathological change may be arrested and reparative or curative action established?

An exhaustive reply to this question would lead us far afield, but I must briefly review the evidence which appears to justify a general affirmative answer.

History is full of authentic examples of the influence of the imagination and the mind upon the body.<sup>39</sup> The "miracles" of Mecca, of Rome, of Lourdes; the effects of the "royal touch"; the wonders wrought by Perkins and his "tractors"; the equally marvelous cures brought about by imitation tractors in the hands of his opponents; the modification and alleviation of actual epidemic disease, through faith in an individual, as by Victor Emanuel's visit to Naples during the cholera epidemic of 1805;<sup>40</sup> the occasional striking results of "faith

<sup>39</sup>In all ages wonderful cures, real amid a multitude of shams, have been wrought at holy places dedicated to various saints of various cults. Among the throngs of pilgrims to Mecca, to the sacred rivers and temples of India, to the shrines of Buddhist hagiology, there are some who, having made the outward journey wearily and painfully, do indeed turn homeward with the gift of health. A proportion of those who have limped or been carried to Lourdes and to a hundred other holy places of the Catholic Church, do leave behind them crutches that they no longer require. Some of the sufferers who worshiped the Holy Coat at Treves did truly receive in restored health the reward of their faith. Some wearers of relics and amulets are really the better for possessing them. The cheered, uplifted and convinced mind works, sometimes with startling rapidity, on the diseased body.

For this same reason, touching the king's evil did no doubt effect many cures. The royal progresses were announced some time beforehand, and the sufferers along their route had often weeks in which to cherish the expectation of healing, in itself so beneficial; and in those days of faith, when a belief in the divine right of kings was universal and strong, the touch of the royal hand must, except in the most hopeless cases, have had a stimulating effect, which may often have caused a healthful reaction.—"Psycho-Therapeutics." By C. Lloyd Tuckey. 1889. Pp. 10 to 11.

<sup>40</sup>During the famous siege of Breda, in 1625, the garrison was afflicted with scurvy in a most dreadful degree. When the Prince of Orange heard of their distress, and understood that the city was in danger of being delivered up to the enemy by the soldiers, he wrote letters addressed to the men, promising speedy relief. These were accompanied with medicines against the scurvy, said to be of great price, but of still greater efficacy; many more were yet to be sent them. The effects of this deceit were truly astonishing. Three small phials of medicine were given to each physi-



cure" and "Christian science," and of homœopathy and the other "pathies" at the present day, are well-known examples of the undoubted therapeutic power of the mental or cerebral processes or conditions under certain circumstances. But in the majority of these cases pain, the most uncertain and indefinite of all symptoms and the one most influenced by the personal equation, was the phenomenon chiefly affected; or loss of power, almost equally vague when not studied scientifically and by modern methods; or perhaps the secretions merely were modified advantageously as the "fluxes" of cholera, fear producing relaxation of the vessels as seen in the sweats and diarrhœa of young soldiers on the eve of their first battle, faith and hopefulness counteracting this tendency. All this is easily explained when we remember the antagonism which exists between the two great divisions of the nervous system as regards vascularity, a fact which underlies many of the striking physical phenomena associated with varying mental states.

The normal equilibrium which we witness between the cerebro-spinal and the sympathetic systems, as respects their influence upon the blood-vessels, is obviously more or less interfered with, when the brain transmits a more than wonted impulse; allowing the unrestrained action, or paralyzing the influence of the sympathetic vaso-motor nerves.

The application of a similar principle, in regard to the functions of the cerebrum and the spinal cord, explains the unbalanced action of the latter when the former is temporarily paralyzed by mental shock, and probably goes far to elucidate

cian, not enough for the recovery of two patients. It was publicly given out that three or four drops were sufficient to impart a healing virtue to a gallon of liquor.

The effect, however, of the delusion was really astonishing, for many were quickly and perfectly recovered. Such as had not moved their limbs for a month before, were seen walking the streets sound, straight and whole. They boasted of their cure by the Prince's remedy; the motion of their joints being restored by a simple friction of oil; and the belly now of itself well performing its office, or at least with a small assistance from medicine. Many who declared they had been rendered worse by all former remedies administered recovered in a few days, to their inexpressible joy, and the no less general surprise, by their taking (almost by their having brought to them) what we affirmed to them to be their gracious Prince's cure.—"Of the Imagination as a Cause and as a Cure of Disorders of the Body; Exemplified by Fictitious Tractors and Epidemical Convulsions. By John Hygarth, M.D. 1801. Pp. 29, 30.

the remarkable influence of the emotions in causing convulsive disorders.<sup>41</sup>

But before we can assign to this cause any important share in the production of the benefit following operation in such cases as we are considering we must examine the existing evidence as to its possible influence upon morbid as well as upon physiological processes.

A belief in this power has been common in the profession for many years. John Hunter said "as the state of the mind is capable of producing a disease another state of it may effect a cure." Benjamin Rush wrote that he had frequently prescribed remedies of doubtful efficacy in the critical stage of acute diseases, but never till he worked up his patients into a confidence bordering upon certainty of their probable good effects. He adds that the success of this measure much oftener answered than disappointed his expectations. Tuckey thinks<sup>42</sup> that continuous fixation of the mind upon one special organ predisposes to disease of that organ and cites illustrative cases, as the death of Trousseau from cancer of the stomach.

Forbes Winslow<sup>43</sup> goes so far as to say that "it is a well established fact that alterations of tissue have been the result of a morbid concentration of the attention to particular organic structures."

As an example of the extraordinary effects of purely psychical impressions I may mention the case narrated by MacKenzie,<sup>44</sup> in which a patient who was subject to attacks of rose cold, was shown an artificial rose at a time when her nostrils had just been examined, her conjunctivæ were normal, the nasal passages free and there was nothing to indicate the presence of her trouble. Dr. MacKenzie describes as follows the result of showing her the rose, which was a clever counterfeit: "In the course of a minute she said she felt that she must sneeze. This sensation was followed almost immediately by a tickling and intense itching in the back of the throat and at the end of the nose. The nasal passages, at the same time, became suddenly ob-

<sup>41</sup>Influence of the Mind upon the Body. By D. H. Tuke. Vol. ii, p. 288.

<sup>42</sup>Psycho-Therapeutics, 1889, p. 4.

<sup>43</sup>Obscure Diseases of the Brain and Mind, London, 1860.

<sup>44</sup>Amer. Jour. Med. Sc., vol. lxli, p. 49.

structed, and the voice assumed a hoarse, nasal tone. In less than two minutes the puncta lachrymalia began to itch violently, the right and afterward the left conjunctiva became intensely hyperæmic and photophobia and increased lachrymation supervened. To these symptoms were added, almost immediately, itching in the auditory meatuses and the secretion of a thin fluid in the previously dry nasal passages. In a few minutes the feeling of oppression in the chest began, with slight embarrassment of respiration. In other words, in the space of five minutes she was suffering from a severe coryza, the counterpart of that which the presence of natural roses invariably produced in her case. An examination of the throat and nasal passages was then made. The right nostril was completely obstructed by the swollen, reddened, irritable turbinated structure; the left was only slightly pervious to the air-current; both were filled with a serous-looking fluid. The mucous membrane of the throat was also injected, but did not exhibit the same amount of redness and irritability found in the nasal passages."

Leloir<sup>45</sup> has called attention to what he calls "dermatoses par choc moral." He reports cases of cutaneous anæmia, ("local syncope"); of cutaneous hyperæmia, such as erythema and urticaria; of hæmorrhage, such as purpura; of inflammations, superficial and catarrhal; of herpes; of pemphigus, and even of psoriasis; produced by various forms of nervous shock. He has been most careful to establish the proper relation of cause and effect, excluding all cases in which skin diseases had previously existed or in which there had been any chronic predisposing condition of any sort. He believes that in patients not susceptible the shock would produce simple vaso motor phenomena more or less transitory, while in the susceptible subject the effects are both more intense and more permanent. He quotes Charcot, Vulpian, Brown-Sequard and Westphal, to show that grave nervous affections even resulting in death may follow shock, and refers to the well-known effect of fear upon the intestinal and urinary tracts as corroborative evidence. Similar cases are reported in extenso by one of his pupils, M. Lévêque.<sup>46</sup>

Bouchard<sup>47</sup> has shown the influence of similar nervous shocks in the production of attacks of gout.

<sup>45</sup>Ann. Derm. and Syph., second series, vol. viii, 1887.

<sup>46</sup>Contribution à l'étude des Maladies de la Peau produites par un Choc Moral, Thèse de Lille, 1887.

<sup>47</sup>Leçons sur les Auto-Intoxications, Paris, 1887.

Further evidence of the same sort has been recorded by M. Le Brun.\*<sup>43</sup>

Dr. R. W. Taylor sends me the following interesting case:

A lady, æt. 36, of fine physique, never before sick, married, mother of one child, was suddenly informed of the death of her husband. She fainted away and when restored she noticed a burning sensation of the whole face and neck (no local applications had been made while she was in the faint). Within a few days erythematous eczema set in and ran a very severe course, leaving her with a tendency to scaling eczema of the ears ever since. This case was completely analyzed by me, and set down in my records as one of eczema from mental shock. I have seen a few more, but not any which presented such a clear history as this one.

New York, March 27, 1891.

Dr. James Nevins Hyde writes me in reference to this phase of the subject:

I remember distinctly that Dr. Detmold used to produce astonishing effects (for the time being at least) in the cure of stammering by thrusting a heated needle into the tongue, and he used to produce roars of laughter in his class by his comical descriptions of cases of this kind.

You are of course familiar with the remarkable cures produced by "taking the eye out and scraping it and putting it back" into the orbit, the actual operation having been perhaps so simple an affair as the eversion of one of the lids, or perhaps a still simpler manipulation of this part.

I reported not many years ago the details of a case in which a gentleman in moderate circumstances was suddenly informed that he had inherited a large property. For several hours after learning of this fact he was in a state of intense cerebral excitement, and his hair, which had previously been of a light brown shade, became red; and

\*The curative effects of shock are illustrated by the following case: "Eve's Surgical Cases," p. 725, from *Brewster's Philosophical Journal*. A man so much palsied in his limbs that for three years he had not been able to walk over one-half mile, took passage on a sailing ship to New York. During the first days of the voyage he was never seen to stand up. The vessel was struck by lightning; the rod of the conductor (four feet long and five and one-half inches in diameter) was melted. After this the man was seen parading the deck, and his power was completely restored.

<sup>43</sup> Thèse de Doctorat, Lille, 1886.

the distinctive line between the previous color and that to which it had changed was not only distinctly recognized at the time of my examination but also seen plainly in the hairs which I exhibited to the American Dermatological Association. Other cases have been reported of remarkable and sudden changes in the hair-color due to nervous excitement of various sorts, one such reported from Washington, where the hair suddenly turned black in the case of a young woman suffering previously from other ailments.<sup>49</sup>

All these cases are subject to the possible explanation that under the influence of the nervous excitement there occurs an exceedingly profuse diaphoresis, and the excessive sweat in a debilitated subject will sometimes wash the pigment to the surface and produce not only in the hairs but upon the surface of the skin very singular changes.

I am sure you have seen some thin and nervous women, say between the ages of 20 and 35, for the most part unmarried, who, when greatly fatigued or when the nervous system had been agitated from other causes, have exhibited singular black streaks about the lips and temples, which were by their friends supposed to be the accumulation of soot upon the surface, but were really due to the deposit of pigment in this locality, such pigment being often sufficient in quantity to soil a linen handkerchief wiped over the surface.

Chicago, Ill., March 19, 1891.

It has been demonstrated and is not now disputed that nerves may act directly upon cells, pigmentary, secretory, and other tissues without the intervention of blood-vessels.

Lister's observations on the pigmentary cells in the web of a frog's foot have proved that change of color is there "dependent upon molecular movements carried on in the interior of cells under influence of the nervous, and under circumstances which exclude the intervention of the blood vascular system"; and, as Prof. Rolleston observes, "A force which can be seen to produce molecular movement within a pigment cell, may well be supposed to be competent to produce nutritional or

<sup>49</sup>Dr. D. W. Prentiss has recorded two cases of remarkable change in the color of the hair during treatment with pilocarpin, one of them occurring in a young woman, æt. 25, the other in a baby, æt. 14 months. In the first case the hair between November, 1879, and May, 1881, changed from a light blonde with a yellow tinge to a pure black. In the second case the change was less marked, and was rather a difference of shades than of color. *Phila. Med. Times*, July 2, 1881, and August 13, 1881.

chemical changes in the interior of cells of other characters."<sup>51</sup>

It seems fair to assume, therefore, that psychical influence abstractly considered possesses the potency to effect many of the causes we are considering. That it has done so I do not pretend to assert. It would leave unaccounted for the curative effect of these operations in imbeciles; as well as my failures to affect epilepsy by anæsthetization when the mental effect was the same as if an operation had been performed. Still we must unquestionably admit that it is a therapeutic force, at present quite beyond our control, but possibly capable of future scientific employment.

Forty years ago Mr. James Baird<sup>52</sup> undertook a laborious course of experiments on patients in waking conditions, as well as on others when in the hypnotic state, by which he thought he had demonstrated, not only that an act of fixed attention, on the part of a patient, directed to any organ or part of his body, was adequate to change the normal condition of the organ or part, both as regarded sensation and function, even during the waking condition; but that he also had proved that, through audible suggestions, the function of any organ or part might be excited or depressed with great uniformity, ~~or varied according to the suggestions of a second party, conveyed in an energetic and engrossing manner.~~ Especially was this the case if the patient or subject possessed a vivid imagination, and lively faith in the fulfillment of the prediction. Mere fixity of attention clearly brought out an exalted manifestation of the naturally predominant susceptibility of the organ or function upon which attention was fixed; but fixity of attention, together with an expectant idea as to the peculiar result to be anticipated, was generally followed by a result corresponding precisely with the dominant expectant idea in the mind of the patient during his fixed act of attention.

Hypnotism, however, fell into undeserved disrepute and it is only of recent years that an attempt has again been made to give this form of

<sup>51</sup>Tuke, *Op. Cit.*, vol. i, p. 145.

<sup>52</sup>Hypnotic Therapeutics, *Monthly Journal Medical Science*, vol. viii, 3d Series, p. 18, 1853.

psychical influence a place in practical therapeutics. Tuckey and others detail some most interesting experiments in this line. Prof. Delboeuf, of Liege, for example, desiring to ascertain the positive effect of hypnotic suggestion in the treatment of a burn, and being of course unable to find two persons of identical constitution and condition generally, used the ingenious device of producing, with caustic, two exactly similar burns on the same person—one on each arm—and of treating one wound by curative suggestion, combined with the usual remedies, and the other with the usual remedies only. Having induced hypnotic sleep, he suggested to the patient that the one arm should be cured painlessly and without any suppuration; and it did in fact heal, by simple separation of the slough and healthy granulation, ten days earlier than the other, which went through the suppurative process, accompanied by inflammation and pain. Tuckey<sup>53</sup> adds: "Were this case not reported by a well-known savant, I confess I should feel some hesitation in recording it here; as it is, its accuracy is beyond doubt."

Professors Bourru and Buret, of Rochefort, succeeded in causing hæmorrhage from the nose by suggesting that it should take place in a young soldier of epileptic and hysterical constitution; they even fixed the hour when it should come on. On this same subject Dr. Mabillet<sup>54</sup> of the lunatic asylum at Lafond, produced instantaneously, by suggestion, hæmorrhage from different parts of the body, exactly similar in character to the stigmata of some mediæval saints.

Prof. H. C. Wood<sup>55</sup> has recently experimented upon the therapeutic effect of hypnotism without suggestion in two cases; one of tremors simulating paralysis agitans; the other a sufferer from paraplegia.

The history of the first case was that some years previously the woman had been attacked by tremors like those now present, but had recovered after three years' illness; that about three months before entering the ward of the hospital the tremors had returned. They had stopped at one time for two weeks, but when the case was taken in charge they were continuous in one arm, and exactly simulated those of true paralysis agitans. This woman was found to be a good subject for hypnosis. The tremors continued during the hypnotic sleep. No hypnotic suggestions whatever were made to her, but the second

<sup>53</sup>Psychic-Therapeutics or Treatment by Hypnotism. Wood's Medical and Surgical Monographs, vol. iii, p. 755.

<sup>54</sup>Op. Cit., vol. ii, p. 754.

<sup>55</sup>Lancet, Jan. 11, 1890: Amer. Jour. Med. Sc., vol. lxxix, p. 286.

treatment was followed by great lessening of the tremors, and four treatments sufficed for a cure.

In the second the paralysis of the legs was almost complete, associated with irregular patches of anæsthesia on the legs, absolute loss of the patellar reflexes, and great complaint of weakness and numbness in the arms. The woman had not the appearance of being hysterical, but the diagnosis of hysterical paraplegia had been made by Dr. Dercum. The ordinary treatment had been instituted without avail. During the hypnotic treatment no suggestions were made to the patient. After the second seance the numbness disappeared from the arms; after the third the woman was able to stand; after the fifth she could walk. after eight treatments she was able to walk long distances, stand very well on one leg, and was about to go from the hospital as cured, although her knee jerks had not returned.

Dr. Wood does not commit himself to any theory as to the method in which hypnosis produces cure, although as yet he does not see why all the effects obtained cannot be accounted for on the theory of mental influence. For the exertion of such influence it is not essential that the physician should speak to the patient specifically about his or her case; especially is this true at the Paris and Nancy Clinics, since the whole atmosphere is heavy with faith. The patients come to be cured of their diseases; they undergo a process which to the ignorant is most mysterious, and which even educated people must, until they are accustomed to it, look upon as "uncanny." The elements of profound mental impression are all present, and it needs no words of the physician to bring them into action.

In discussing this branch of the subject with the admission that we are not yet prepared to estimate the full value of the *mental* effect of much of our operative work I cannot refrain from an allusion to its application to the current statistics in a particular line of abdominal surgery.

In these days of somewhat indiscriminate oophorectomy many cases are operated upon and are truthfully reported as "cured" when, to the unprejudiced eye, but little actual disease appears to have been found.

When one recollects how many such cases undergo an unaccountable spontaneous cure, how often the symptoms cease after some mental impression or physical shock, or a perseverance in some extraordinary position, how many fruitful but painful ovaries have been saved by



Dr. Weir Mitchell's systematic treatment, and how often it has happened that a threatened, simulated, or imperfect operation has been enough to frighten or charm away all acquaintance with suffering, doubt falls upon both the asserted necessity and the reputed success of the operation itself. It can never be determined how much is due to the amputation, how much is a psychological phenomenon. How many women have been doomed to sterility that would have been equally relieved by a farce or a failure, can never be made out. But it is a query which takes the gloss off a mass of statistics.<sup>56</sup>

3. *Relief of tension.*—Although it is not true that in every case described in this paper relief of tension was afforded, there can be little doubt that this was an important factor in many of them. Assuming that if preternatural tension existed in the cranial cavity, it would be relieved to an extent by trephining, we find few exceptions to the rule that in each case something was done which lessened tension in a cavity or organ of the body.

With respect to the meaning of the word "tension" as employed in surgical work, and particularly in clinical work, Bryant's<sup>57</sup> definition may be accepted. According to him it means the pressure brought about by the stretching or distension of tissue from either the growth of some neoplasm or the effusion of some fluid; tension, in this sense, meaning distension or the stretching of parts by a force acting from within—by centrifugal pressure.

In some of the cases, as those of supposed renal calculus, for example, the relief afforded by the division of the capsule of a possibly engorged and swollen viscus may be readily understood. The application of the principle to cases of epilepsy is not so clear.

Dr. Thomas Oliver,<sup>58</sup> after reporting a partially successful case of trephining for epilepsy (see table) says: "Gowers speaks of having seen or heard of 65 cases of epilepsy owning a traumatic cause, and of trephining as the only line of treatment likely to be successful, and

<sup>56</sup>Sir Spencer Wells, *Amer. Jour. Med. Sc.*, vol. lxxii, p. 467-8.

<sup>57</sup>Tension, as Met with in *Surgical Practice*, by Thos. Bryant.

<sup>58</sup>*British Medical Journal*, Feb. 4. 1888.

that, be it remarked, as in my own case, where neither disease of bone, membrane or surface of the brain was found at the time of operation. Relief comes either from the operation acting as a strong counter irritant lasting all through the period of healing, or from the reduction of tension consequent upon the escape of pent-up serum."

In the cases of abdominal section, especially those attended with the presence of tympany or ascites, the powerful influence upon the whole economy produced by the relief of tension is obvious. Braxton Hicks<sup>59</sup> has well described the conditions in such a case.

The effects of the pressure on the circulation would be similar to that which takes place during inspiration, only that it would be constant and more severe, whilst the "respiratory tension" would increase it still more. Thus the blood on endeavoring to enter the abdomen would be retarded both from above and below, and the return current from the lower extremities would be impeded, with this additional disadvantage that the aorta, although itself pressed upon, yet would overcome the resistance better than the veins; and this would increase the venous turgescence and engorgement in the legs, and produce a tendency to oedema. The same effect, though not so marked at first, would take place above the abdomen, partly by the difficulty of executing the respiratory act, and partly by the detention of the blood in the aorta, and the consequent embarrassment of the circulation in the heart. The portal system would be interfered with, and the return current from the lower rectum impeded. The general circulation in the portal system would be checked, and this, with the retardation of the cardiac current, would tend to engorgement of the liver. In like manner would all the abdominal organs be interfered with and their proper action checked. The kidneys, for instance, would find greater difficulty in excreting urine, and what quantity was formed would find a difficulty in making its way into the bladder because of the pressure on the ureters. The bladder also would be less able to expand. Again, the pressure on the intestinal structures would retard the functions of assimilation, and the nutrition of the body would be thereby diminished. Also pressure on the sympathetic ganglia and nerves tends to depression of their functions, and notably the cardiac, thus forming one, and not the least, factor of many that lead to death in abdominal diseases.

<sup>59</sup>The Proceedings Med. Soc. of London, vol. vi, pp. 336-337.

Muret,<sup>60</sup> in an elaborate article on the treatment of ascites by faradization of the abdominal walls, has called attention to the fact that all the methods which have been employed with success in the treatment of ascites have in some way produced a diminution of intra-abdominal pressure. He includes the use of purgatives and of early tapping and in relation to the latter refers to the papers of Murchison, Gintrac, Austin Flint, Ewald, Jacoby and others.

His own results are exceedingly interesting in their relation to the question of the influence of abdominal tension.

A diminution of this tension would manifestly alter the blood supply to any important organ in the body and with it the nutritive processes, local and general, but we can say no more with definiteness except as it applies to cases of ascites, in which, as in cases of hydrarthrosis, one tapping may prove permanently curative because the original source of irritation and hypersecretion had already disappeared.

4. *Reflex action*.—Under this head may be included the "reaction of traumatism", as well as the effects of revulsion and counter-irritation.

Verneuil,<sup>61</sup> in a paper calling attention to the influence exerted by prior lesions of the liver on the progress of traumatic lesions, long ago emphasized the fact that any traumatism, however slight, sometimes excites in the entire economy a general perturbation and sometimes by a kind of selection of the weak point a sudden and violent aggravation of lesions that are only slight or that slumbered.

It seems to me that this same excitement, usually prejudicial, may occasionally be curative, although it must be admitted that these are vague terms and that even if the explanation is correct it is yet far from final.<sup>62</sup>

In endeavoring to account for the cause of cure in the case of spinal surgery already detailed (see page 37) Dr. Dercum and I were compelled to invoke this reaction of traumatism. We discussed the case as follows:<sup>63</sup>

<sup>60</sup>Revue de Médecine, Paris, 1888, vol. 8, p. 719.

<sup>61</sup>Gazette Hebdomadaire, Oct. 8. 1875.

<sup>62</sup>ANNALS OF SURGERY, July, 1890.

"A question of great theoretical as well as practical interest now presents itself. In looking back over the case, we ask ourselves what is the rationale of the recovery? What was it that the knife accomplished that resulted so happily to the patient? Evidently it could not have been the mere relief of pressure. The cord lies loosely within the spinal canal, and the dural thickening observed by us could not have encroached materially upon its territory. The adhesions, however, must have played an important part in the production of the symptoms, and the actual service accomplished by the knife is here very evident. That, however, the adhesions were sufficient of themselves to explain all of the symptoms it would be absurd to assume. Doubtless the case was one in which a more or less diffuse myelitis existed, associated in the upper dorsal region with a marked meningitis, the latter involving both membranes. In this way only can we account, on the one hand, for the pain elicited on percussive flexion and transmitted shock, and, on the other, for the widespread paralysis and the trophic changes.

Is it not proper, then, to assume that the result achieved in this case is due, not alone to the laying open of the dura and the destruction of adhesions, but also to a reaction of nutrition, the result of the surgical trauma? Certainly surgery is not wanting in instances of such reaction, as witness the occasional recovery in tubercular peritonitis as a consequence of laparotomy. It would seem as though the local shock had been promptly followed by a corresponding reaction in which the vitality of the tissues had been raised sufficiently high to determine a return to the normal state. Certainly the case before us is not only unique but exceedingly suggestive."

As evidence of the extraordinary pathological changes that may be brought about by factors but little understood, I may instance the experiments of E. Mendel, (*Neurolog. Centralblatt*, May 15, 1884), who, believing that hyperæmia was an important feature of the early changes in general paralysis, sought to excite an intense chronic hyperæmia in dogs. For this purpose he fastened the animals on a revolving table with their heads toward the periphery. Rapid revolutions, 125 to 130 a minute, continued for half an hour, produced punctate hæmorrhages. Slower revolutions (110) for six minutes a day, produced, after some weeks, symptoms of general paralysis, and, on killing the animals, he found adhesions between the skull, the meninges, and the brain, an increase in the nuclei and cells of the glia, an increase in the number of vessels, and changes in the ganglion cells. This condition finds a clinical representation in a case recently reported by Bernhardt (*Deut. Med. Woch.*, March 29, 1888), where symptoms of general paralysis developed gradually after a railway injury. Furstner (J. Holland, *Archiv. f. Psychiatrie u. Nervenkrankheiten*, vol. xix, p. 438, 1888), has reported Mendel's experiments with fewer revolutions (60 to 80) for a shorter time (1 to 2 minutes) and continued for months. He found

double primary degeneration of the lateral columns and of a particular part of the posterior columns, changes in the optic nerves, and changes in the brain similar to those found by Mendel. Similar changes in the lateral columns have been found after death, in patients who have suffered from "concussion," by Dumenil and Pelel, and also by Edes, (*Boston Med. and Surgical Journal*, September 21, 1882. —(Nervous Affections following Injury, by P. C. Knap, *Boston Medical and Surg. Jour.*, vol. cxix, part 2, p. 451, 1888).

But there may be more than local shock to account for marked changes in either pathological or normal structures. The reciprocal influence of one portion of the body on another in both health and disease is a most interesting but as yet unsolved problem. Many years ago Tholozan and Brown Séquard showed<sup>64</sup> that by lowering the temperature of one hand a sensible reduction of the temperature of the other could be brought about without affecting the general temperature of the body. This we can now understand. But what is the relation between the parotitis of mumps and the orchitis which so often complicates it? Why do a certain proportion of the cases of severe burn die from perforating duodenal ulcer? Why do we have amaurosis from dental caries or paraplegia as a result of renal calculus? Why, in a gouty person, is the swelling of the metatarso phalangeal joint of the great toe accompanied by a disappearance of the gastric dyspepsia? Why are liver diseases associated with retinal change or mucous polyps with asthma?

While the majority of such questions as these remain unanswered, we can scarcely venture to deny the possibility of operative interference at least occasionally producing curative effects though the rationale of its action remains a mystery. Still more striking examples of the reciprocal influence of tissues remotely connected are to be found in the few carefully observed cases of so-called "maternal impressions" among the host of nonsensical cases of the same sort that have found their way into the journals.

One of the most remarkable of these cases has been recorded by Dr. William Hunt.<sup>65</sup> A woman when eight

<sup>64</sup>See a paper by Dr. John Ashburst, on "Nervous Action." *Amer. Jour. Med. Sciences*, vol. xl, p. 105.

<sup>65</sup>*Amer. Jour. Med. Sc.*, vol. lxxxi, p. 186.

and a half months pregnant, received extensive burns of the surface of the body. Labor came on the next day and a well-formed but dead female child was born, apparently blistered and burnt in extent and in places almost exactly corresponding to the injuries of the mother. The figures which accompany Dr. Hunt's article are exceedingly striking and it is difficult to believe that the occurrence was simply a coincidence.

There remain some special points in connection with abdominal tumors and with peritoneal tuberculosis which require mention. We should not ignore the possibility of the spontaneous disappearance of a tumor, the relation to the operation being coincidental.

Dr. Thos. Dwight has reported such a case in which a large, hard, rectal tumor disappeared, and says there seems to be little doubt that tumors of various kinds do, though very rarely, disappear without surgical interference.

Esmarch, of Kiel, told Paget that he had seen cases of recurrent fibroid tumor cured, and not again returning, in patients who had taken large doses of iodide of potassium for several weeks. Dr. Duhring reported in *The Archives of Dermatology* for January, 1879, a remarkable case of so-called inflammatory fungoid neoplasm. In brief, a woman, otherwise healthy, for some two and a half years before her death had a great number of tumors, chiefly in the chorion or subcutaneous tissue, which presented the most surprising variations of size, sometimes entirely disappearing. The microscope showed them to consist essentially of a hypertrophy of the fibrous elements of the chorion, and a varying amount of granular and other cells.

Dr. Coats exhibited for Dr. Gairdner specimens from a similar case before the London Pathological Society in April, 1879. The tumors were found also in the connective tissue at various places inside the abdomen. The growths were held to be lymphadenomatous. Sir James Paget made some remarks in the discussion which deserve to be reproduced. He said "the report of such a case was useful, as likely to help in the explanation of these rare instances in which tumors diagnosticated to be cancerous had disappeared after a time. He suspected that there was a greater number of such cases on record than might be imagined, and the collection of them would be an interesting and important undertaking. Three cases of the disappear-

ance of tumors in this way were known to himself. One was in the person of a young man who had suffered for two or three years from what appeared to be ordinary lymphadenomatous growths in the neck, axilla and groins. Within a week these tumors all suddenly disappeared, but the patient then began to suffer from dyspnœa, and soon afterward died. Another case he regarded as one of multiple medullary cancer (what would now be called small celled sarcoma), and the microscope corroborated this diagnosis. The growths occurred on the neck and axilla. There was a very large mass over one deltoid, which suppurated and sloughed, during which process nearly all the other growths disappeared. The man recovered, and enjoyed good health for some months, but the growth afterward recurred and caused death. The third case was one which he had diagnosticated as medullary cancer of an undescended testis. There was a tumor as large as two fists, and he had prescribed liquor potassæ and iodide of potassium, under which treatment the mass soon entirely disappeared. In eight or ten weeks, however, it recurred, but disappeared again under the same treatment. This also happened a third time, but having recurred a fourth time, it was no longer amenable to treatment, and the patient died. The microscope confirmed his original diagnosis as to the nature of the growth." Other gentlemen mentioned somewhat similar cases.

An interesting paper on the sudden disappearance of tumors, by Dr. Fischer, of Breslau, is to be found in the *Deutsche Zeitschrift f. Chir.* vol. xii, 1879. Dr. Fischer calls attention to the fact that in certain very prostrating diseases tumors of some kinds suffer a great reduction in size, and among these are sarcoma, adenoma, and swellings of lymphatic glands. The cases he reports are chiefly of enlarged lymphatic glands and of enlarged thyroids. Some of the glandular tumors were greatly affected by the removal of other tumors. One of the enlarged thyroids returned to its proper size during a light attack of scarlatina.<sup>66</sup>

Eve cites (Eve's Surgical Cases, p. 816) from Warren on Tumors, case of female with tumor of submaxillary gland, size of egg, very hard; removal advised, but patient objected. Active local treatment for a number of weeks made no improvement. Patient finally asked if an application recommended to her would be safe; this was an application of a dead man's hand three times to the diseased part. Being assured no harm could result, the application was made, and she reported later with the tumor actually gone.

<sup>66</sup>The Disappearance of Tumors, Boston Med. and Surg. Jour., 1880, vol. xxvi, p. 562.

As to the cure or amelioration of growths thought to be malignant by a merely exploratory operation, the idea seems opposed to all our modern theories as to the etiology and causation of such neoplasms. A long search through the literature of the subject has been met with but little success. Few claims of permanent cure by any methods short of complete excision are made by respectable authorities, and we all know how lamentably rare are such cures even after the most thorough removal.

Perhaps the most interesting case which I have found is one, that of Dr. Twitchell, of New Hampshire, a well known surgeon of New England, recorded by Dr. H. J. Bowditch.<sup>67</sup> His grandmother had died of carcinoma mammæ; his sister of scirrhou; pylorus. At the age of 60, a small hard tumor developed at the internal angle of the right eye. Three years later this had become so large that it was removed by operation, but promptly returned, and became a ragged, hard, elevated ulcer, thought by Dr. Bowditch and the patient himself, and a number of eminent surgeons, to be undoubtedly malignant. All local applications failed to modify its course, and Dr. Twitchell finally decided to give up all use of medicines internally, or of external applications, but to try a course of the most rigid diet. Starting from a theory that malignant diseases arise from the fact that we take too much carbon into our system, he determined to live, from that time, upon a bread and milk diet, and if, at the end of some months, he did not find any diminution in the disease, he determined to use nothing but bread and water. The immediate result was most favorable, and Dr. Bowditch two years later could scarcely discover the cicatrix. Whether it was Dr. Twitchell's diet, or his belief in it, that was the effective agent cannot be determined.

Other and final points deserving of special mention, as they do not fall in satisfactorily with any of the suggested explanations, but may, perhaps, be better understood on general pathological grounds, are the relief of abdominal pain and the cure of tubercular peritonitis by so-called simple exploratory operation.

As to the first point the experience recorded by the follow-

<sup>67</sup>Charleston Med. Jour., November, 1849.



ing writer has, undoubtedly, been that of many others and clears up much that is otherwise mysterious.

Sir Spencer Wells<sup>67</sup> says: In my fifth case the two ovaries had been amputated by surgeons of renown in Holland, at different times, without permanent benefit. At my operation there was no trace of another ovary, and what I did was to separate part of the omentum and a coil of the small intestine from the uterus to which they were attached, and to divide another piece of omentum which adhered to both the fundus uteri and the cicatrix in the abdominal wall. Here the two castrations did no good. The liberation of abnormal connections near the seat of the pain was what was wanted, and must be regarded as something more than the completion of the two oophorectomies.

L. Prochownick is of the opinion that much of the success claimed for operative interference in tubercular peritonitis is attributable to errors of diagnosis, and that the same also applies to other forms of peritoneal inflammation. He believes that after many cases of acute pelvic peritonitis adhesions of the omentum to the pelvic organs occur and give rise to intestinal and gastric symptoms, such as vomiting, gastralgia, nausea, abdominal distension, rectal and vesical tenesmus, constipation or diarrhoea. Adhesions to the generative organs in the female cause dysmenorrhoea, umbilical pains, etc. It may well be that in many cases of so-called exploratory abdominal incision followed by the disappearance of this or similar symptoms, the good result has been obtained by breaking up of these omental adhesions.<sup>68</sup>

Howitz states that he has observed several cases in which he performed laparotomy for relief of severe pain, attributed to disease of the adnexa, and found adhesions between the omentum and the posterior surface of the symphysis pubis. The pain was entirely relieved by simply detaching the adhesions. The patients were under observation sufficiently long to demonstrate the fact that the relief was permanent. He details an interesting case of a patient, æt. 36, who had suffered from abdominal pains since the age of 17, and had been treated for ulcer of the stomach, for pelvic trouble, had used pessaries, had tried massage, etc. Separation of the omentum from the symphysis in this case resulted in a complete cure.<sup>69</sup>

<sup>67</sup>Amer. Jour. Med. Sci., vol xvii, p. 467.

<sup>68</sup>Deut. Med. Woch., No. 24, 1889; ANNALS OF SURGERY, October, 1889.

<sup>69</sup>Cent. f. Gynakologie, August 3, 1889.

In this relation the following communication from Dr. H. C. Coe, of New York, is of much interest.

The expression "exploratory incision" or "exploratory laparotomy" has been used quite loosely to signify an abdominal section in which there has been no actual *removal* of a diseased organ or neoplasm. In my opinion this leads to serious error when we come to estimate the results of these operations, since we are constantly liable to regard an "exploration" as synonymous with an "incomplete" section. My idea of a pure "explorative laparotomy" is one in which a small incision is made, and the finger is introduced for diagnostic purposes, and is withdrawn as soon as the diagnosis is settled, *without any further manipulation*. If adhesions are broken up, if a displaced organ is replaced, if a sac is emptied by pressure (such as evacuation of the contents of a pyosalpinx into the uterus), this manipulation ceases to be a pure exploration, and is to be regarded rather as an "incomplete" ovariectomy, in which an adherent cyst is emptied and stitched into the wound. In this strict sense an abdominal incision with the evacuation of even a small quantity of ascitic fluid is not a simple exploration, since the removal of the fluid implies more important results than a pure digital exploration without further interference. This may seem like a refinement of terms, but I would simply call attention to the clinical side of the question. Very few operations reported as purely explorative are rightly so termed. We open the abdomen, find that we have to do with pelvic tumors which are firmly adherent, and decide not to remove them, but rarely stop there. Either intentionally, or in attempting to make a more thorough examination, we separate adhesions (perhaps very slightly) and find that our patients are considerably relieved. This result often appears miraculous. I have seen it repeatedly, but it is rarely, or never, permanent, since the adhesions naturally tend to reform. Again, the removal of ascitic fluid (perhaps only a small proportion of the whole amount) without removal of the *cause* may result in decided benefit, whether by a change in the intra-abdominal circulation, by relieving pressure, or (as Tait thinks) by direct atmospheric influence, we can not say—that it does is an established clinical fact. It is unnecessary in this connection to refer to the value of drainage in cases of uncomplicated tuberculous ascites, since these come under another category. Lastly, I cannot recall a case in which digital exploration *alone* (without separation of adhesions or evacuation of free or confined exudation) has ever *permanently* relieved *bona fide* symptoms. When it has apparently done

so, there has been a strong neurotic element present, so that it was difficult to determine whether the cure was not more *moral* than *physical*. Personally, I can not understand Mr. Tait's statements regarding the disappearance of abdominal tumors after pure explorative laparotomy (as I have defined it), where *nothing else was done except to open the abdomen*. The question arises, might not these tumors (such as fibroids) have diminished spontaneously?

New York, March, 18.

Dr. A. W. Johnstone, of Cincinnati, writes me somewhat to the same effect.

My belief is that in abdominal surgery where the relief, of which you speak, comes, that there has been a low peritonitis, or else a papillomatous growth which has been overlooked by the operator and which is cured by the alteration of the nutrition, incident to the operation. For an instance, in the practice of my former assistant, Dr. Harry Gowen, of Danville, Ky., in his first laparotomy for a supposed traumatic peritonitis (from a blow on the abdomen) there was no serous effusion into the cavity, and nothing could be found except a general reddening of the peritoneum. The drainage tube, however, discharged quite freely for several days and the patient was completely cured. An untrained eye would have taken this for a healthy peritoneum, but I am sure there was a low form of inflammation which the drainage cured.

In this same way simple papilloma of the peritoneum I have seen cured by drainage. I have also seen it disappear after simple incision when no drainage tube was left.

I think papilloma of the peritoneum is like papilloma anywhere else, it sometimes takes a very slight alteration of the nutrition to make it entirely disappear. It is so frequently seen in the papilloma of the fingers of druggists.

In conclusion, I would say, that my belief in regard to these cases is, that there is a true pathological condition which has been overlooked in the operation, and that in proportion to a man's experience in abdominal work, you will find inversely a number of these cases occurring.

Cincinnati, Ohio, March 26, 1891.

Finally, as to the rationale of the cure of tuberculosis of the peritoneum. Peritoneal tuberculosis is dependent upon extension of the tubercular inflammation from adjacent organs, or to

direct infection by means of the bacilli circulating with the blood. Phillip's pathological studies showed that of 107 cases of tubercular peritonitis, the lungs were involved in 99, the pleura also in 60, and the bowel in 80. The frequency of intestinal invasion by tubercle is well known. The serosa becomes quickly involved, but this involvement may remain strictly localized, and may undergo spontaneous resolution if the original source of infection, the intestinal lesion, cicatrizes, as autopsy findings show that it frequently does. When, however, the peritoneal involvement comes from a large organ, and is extensive, it is as difficult to conceive the rationale of spontaneous resolution as it is to explain in what way operative procedure, excepting that of total ablation of the disease, can possibly be of the slightest avail. Yet the fact remains that a gratifying percentage of success follows simple opening and intra-abdominal manipulation in cases of tubercular peritonitis.<sup>71</sup>

Tait says, with his usual positiveness, that a therapeutic change is effected in the peritoneum itself by a mere opening of the cavity, and calls attention to the distressing thirst which is uniformly produced by opening the cavity only a finger's breadth, but is not seen if the operation stops short of that.

The matter cannot be dismissed so easily, however, but may, perhaps, be better understood by a reference to the circumstances, and the general pathological laws that apply to them.

Cabot<sup>72</sup> has recently summarized the evidence at present in our possession in regard to the method by which simple laparotomy cures tubercular peritonitis. He calls attention to the fact that Hirschfeld and others have shown that the tubercles actually disappear from surfaces where they have been known to exist, and quotes Van de Warker in reference to the two ways in which the accumulation of ascitic fluid may, perhaps, act to intensify the morbid process; first, through its mechanical irritation by pressure, or by some unexplained irritating quality in its constituents; and, secondly, by acting as a medium for the propagation and distribution of the tubercle ba-

<sup>71</sup>University Medical Magazine, November, 1890.

<sup>72</sup>Papers on Abdominal Surgery, Boston, 1891.

cilli. This explains the effect of the effusion in favoring the spread of the disease, but there still remains to explain the actual disappearance of already existing tubercles, which follows the removal of the effusion. Upon this point, Van de Warker says: "The irritated peritoneum is given a rest, and allows of a process that belongs, *per se*, to tuberculosis, namely, the thickening and induration of the surfaces—an incapsulation—and which, Hegar suggests, may be a stage in spontaneous cure." Cabot thinks "that this suggestion of Hegar's is of the greatest interest, and that it is probable that the rest afforded to the peritoneum is of importance in allowing it to set up its process of induration, and so to resist the advance of the tubercles."

When, however, the ascitic fluid is wholly removed, and the peritoneal surfaces fall together and acquire adhesions, the tubercles are then shut in between the coils of intestine, the omentum and the abdominal wall. They are thus surrounded by tissues in a high degree of activity, which can now throw around them the limiting zone of young cells, and eventually fibrous tissue, which, if the tubercular process is not too far advanced, may effectually resist it and cause it to retrograde, the process being analogous to that which we see imperfectly going on around a cancerous growth.

It rarely happens that the vigorous growth of a cancer is definitely arrested by this effort of the surrounding tissues; for while it is held in check in one direction, it extends itself in many others, and breaks through the comparatively feeble barriers thus opposed to its progress. In tuberculosis, however, we have a process of much less vitality, and which, occurring in younger subjects, is often successfully hemmed in and destroyed by the healthy tissues about.

The conclusions which seem warranted by the foregoing facts and considerations are as follows:

1. There are large numbers of cases of different grades of severity and varying character which *seem* to be benefited by operation alone, some of them by almost any operation.
2. These cases include chiefly epilepsy, certain abdominal tumors, and peritoneal effusions and tubercle, though the im-

provement in the latter is, perhaps, to be explained on general principles.

3. Of the possible factors which, by reason of their constancy, must be considered, anæsthesia seems least likely to have been effective. The other three, viz., psychical influence, relief of tension, reflex action, may enter in varying degrees into the therapeutics of these cases, and taken together, serve to render the occurrence of occasional cures less mysterious.

4. The theory of accident or coincidence scarcely explains the facts satisfactorily.